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ABSTRACT

This report presents a formative evaluation of the Van Horn Engineering and Technology Magnet High School in the Kansas City School District, Missouri. It presents data collected throughout the program's first year, including student demographics, program implementation information, achievement data, and perceptions of the program held by staff and students. The school did not meet its established minority and non-minority goals. It is reported that site and classroom visits to Van Horn revealed some evidence of implementation of the magnet theme of engineering and technology. A summary of the achievement test scores appear in table form along with clarifying information. It is reported that students held negative perspectives concerning the school experience and teacher's perceptions were generally negative, too. Teacher and student responses are portrayed in tables 5 and 6. A final section draws conclusions about the program and makes recommendations for program improvement. The following recommendations are presented: (1) continue to bring the ethnic composition of the High School in line with the court-ordered desegregation goals; (2) discover why students rated the program negatively; (3) discover how to commit teachers to the theme and challenge them personally and professionally; and (4) strengthen academic lessons. (Contains 3 references.) (MCO)

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Formative Evaluation of the Van Horn Engineering & Technology Magnet High School

1990-1991

Evaluation Office

The School District of Kansas City, Missouri

August 1991

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Formative Evaluation of the Van Horn Engineering & Technology

1990-1991

Jay Atwater
Program Evaluator

August 1991

Evaluation Office
Desegregation Planning Department
The School District of Kansas City, Missouri

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Executive Summary

The new Engineering and Technology senior magnet program has completed the first year of operation as part of the Kansas City, Missouri, School District's Long-Range Magnet School Plan.

This formative evaluation report documents the progress made by the school during its first year of implementing the Engineering and Technology magnet theme. The evaluation was guided by the goals and objectives in the Long-Range Magnet School Plan and the Planning Outline, Van Horn High School Engineering & Technology Magnet Executive Summary.

Van Horn, an existing school, lost a little ground from 1989 to 1990 toward meeting established minority and non-minority enrollment goals; and the program was not filled to capacity in tenth through twelfth grade but was over enrolled in the ninth grade.

Teachers were observed engaging students in cognitive activities for a moderate amount of class instructional time and providing instruction several different ways. Very little class time had interruptions or student disruptions. Posters displaying the engineering and technology theme and students' projects were observed in some classrooms. Books about engineering and technology were evident in most classrooms.

Students were generally negative about their school experience and a majority of students were not glad to be attending Van Horn. Furthermore, almost half reported they would not recommend Van Horn to their friends. The students reported they did not enjoy their classes, doing the projects, or learning about new things.

Teachers reported not being challenged professionally or personally nor committed to the theme. Although teachers felt uninformed about the magnet school plan for this year, they felt the school was not implementing the magnet theme according to site plan goals and objectives.

Student achievement as measured by Tests of Achievement and Proficiency (TAP) showed many students near or above the district norm in the reading, writing, science and math content areas. Minority students' scores were typically slightly below the district norm and non-minority students' were generally above the district norm.

FORMATIVE EVALUATION OF THE FIRST YEAR VAN HORN ENGINEERING & TECHNOLOGY MAGNET HIGH SCHOOL

1990 - 1991

Introduction

Van Horn Engineering and Technology senior magnet program has completed the first year of implementing the magnet theme as part of the district's *Long-Range Magnet School Plan* (Hale & Levine, 1986), (hereinafter cited as the Long-Range Plan) and the task force planning outline.

During the 1989-1990 school year a planning outline for the program was developed by a magnet task force with representatives from the school, administrative leadership, teachers and community representatives. The planning outline established the structure, goals and objectives for the Engineering and Technology program around which this formative evaluation was designed.

Program Description

The engineering and technology program is located at Van Horn High School. The program began the year in the existing Van Horn building. Construction of a new facility continued throughout the year.

The curriculum for the Engineering and Technology theme was to be based on an racially integrated, multi-cultural environment for students interested in engineering and technology. The graduating student should be prepared to go directly into employment and/or continue in a post secondary program.

Evaluation Design

Information provided in this formative evaluation addresses enrollment and ethnic composition, program implementation progress, perceptions of program participants and levels of student achievement for the first year of implementation. This evaluation has been undertaken to address the following questions:

1. What are the student demographics?

2. How closely is program implementation aligned with the *Long-Range Magnet School Plan* (H·le and Levine, 1986) and the planning outlines for the schools?

3. What are the perceptions of the program participants (parents, students, teachers and school leadership) concerning the magnet schools?

4. What are the achievement levels of students enrolled in the Engineering and Technology school?

Results

Program Capacity

Actual enrollment at Van Horn was compared to program capacity data by grade. Enrollment data were from the September 26, 1990 Student Membership report, (Research Office, 1990). Program capacity data were used by the Admissions Office to place students in schools.

As Table 1 shows, ninth grade was 18% over enrolled, while tenth grade was only enrolled to 59% of its capacity. Eleventh grade was enrolled to 84% capacity and twelfth grade was enrolled to 83% of its capacity. Total overall enrollment was at 82% capacity.

Table 1

Enrollment and Program Capacity by Grade
Van Horn Engineering & Technology Magnet High School
1990 - 1991

Grade	Program [a] Capacity	Actual [b] Enrollment	Difference N	Percent of Capacity
Ninth	169	200	+ 31	118%
Tenth	279	164	-115	59%
Eleventh	183	153	-30	84%
Twelfth	155	128	-27	83%
Total	786	645	-141	82%

Note: Percentages are rounded to the nearest whole percent.

[a] Program capacity utilized by the admissions office when placing students in magnet programs.

[b] From *September 26, 1990 Student Membership* (KCMSD Research Office, 1990).

Desegregation Goals

The achievement of court-ordered desegregation in the Kansas City, Missouri School District is a central feature of the magnet school plan. Percent of minority and non-minority students in each grade is expected to be 60% minority and 40% non-minority.

If existing schools, keeping the same grade structure, cannot reach the 60% minority/40% non-minority enrollment goal, progress is still expected. Progress may be achieved with an annual 2% enrollment modification toward the 60/40 enrollment composition. Table 2 presents minority / non-minority enrollment figures for Van Horn.

Van Horn did not quite meet established enrollment minority, non-minority goals for existing schools. Percent minority enrollment in 1990 moved away from established goals for ninth, eleventh and twelfth grades. Ninth grade moved to 64% from 60% in 1989, eleventh grade to 63% from 60% in 1989 and twelfth grade moved to 63% from 61% in 1989. Tenth grade, which showed the only improvement in percent minority enrollment, changed from 56% minority enrollment in 1989 to 57% in 1990. Overall, minorities accounted for 62% of Van Horn's students.

Table 2

Minority and Non-Minority Student Enrollment by Grade
Van Horn Engineering & Technology Magnet High School
1990 - 1991

	Baseline Year: 1989				Year 1: 1990			
	Minority		Non-Minority		Minority		Non-Minority	
Grade	N	%	N	%	N	%	N	%
Ninth	204	60%	135	40%	128	64%	72	36%
Tenth	124	56%	98	44%	94	57%	70	43%
Eleventh	127	60%	84	40%	96	63%	57	37%
Twelfth	122	61%	77	39%	81	63%	47	37%
Total	577	59%	394	41%	399	62%	246	38%

Note: Percentages are rounded to the nearest whole percent. 1989 enrollment figures are from *September 27, 1989 Student Membership* (KCMSD Research Office, 1989). 1990 figures are from *September 26, 1989 Student Membership* (KCMSD Research Office, 1990).

Implementation

Classroom observations. Forty-one classrooms were randomly selected for classroom observations. Each observation lasted twenty minutes for a total of 820 minutes. Observers noted the occurrence of expected classroom activities, evidence of the theme within classrooms and the use of advanced technologies as a part of the class presentation.

Academic Activities. Table 3 presents the amount of class instructional time teachers were observed spending on expected classroom activities. Observers were instructed to consider that the activities could occur concurrently. A moderate amount of time was spent on cognitive activities. Forty-nine percent of class time was occupied with students engaged in problem solving activities (Activity 3). Having students think critically about the topic (Activity 2) occupied 29% of clas. time.

Probing students to determine if they understood the topic (Activity 4) accounted for 11% of the class time. Exploration and inquiry (Activity 1) were observed during 1% of the class instructional time.

Teachers were observed providing instruction in several ways. Instruction directed to a single student (Activity 8) occupied 34% of the class time. Academic presentation by computer (Activity 11) was evident during 31% of the class time and by lecture 29% of the time.

Very little class time had interruptions (Activity 13, 3%) or student disruptions (Activity 14, 2%). Instructional preparation, attendance taking, grading and other class room management activities occupied a small amount of class time (Activity 12, 5%).

Evidence of the theme. Table 4 displays the type and occurrence of theme evidence within classrooms. Books on engineering and technology were observed in 68% of the classrooms. Posters displaying engineering and technology topics were observed in 46% of the classrooms. Observers noted student projects in 44% of the classrooms.

Perceptions

Students and teachers were contacted once during the spring term to collect their perceptions regarding the Van Horn Engineering & Technology program.

Student. Participating students (N= 145) were contacted by randomly selecting several classes from each grade. Students were asked to agree or disagree to a series of statements concerning their experience at Van Horn.

As Table 5 shows, most students were <u>not</u> glad to be attending Van Horn (Item 1, 62%), did <u>not</u> like their classes (Item 2, 60%) and only 38% of the students would recommend Van

Table 3

Classroom Observation
Percent of Time Spent on Classroom Activities
Van Horn Engineering & Technology Magnet High School
1990 - 1991

Activity Type Activity	Total Minutes	% of Class Time
Cognitive Activities		
1. Student Inquiry: Asking questions that lead to thinking or exploration i.e. Prompting, motivating students to ask questions and dig deeper.	12	1%
2. Critical Thinking: Analyzing a situation, cause and effect, comparing, evaluating, making inferences, asking "what if..."	234	29%
3. Problem Solving: Presenting a dilemma to which an answer does not come instantly. Students must go through several steps to solve dilemma.	404	49%
4. Students Understand: Determining if students understand topic.	87	11%
Instructional Activities		
5. Lecture to Class: Oral Presentation to entire class.	236	29%
6. Teacher to Student: Direct instruction to one student.	276	34%
7. Small Groups: Instruction to students in groups.	24	3%
8. Student to Student: Students working in pairs.	71	9%
9. Computer Academics: Using the computer for academic presentation.	255	31%
Classroom Management		
10. Management: Activities instruction preparation, attendance, grading, etc.	39	5%
11. Interruption: Event in or out of class which interrupts academic activity.	22	3%
12. Disruptive Student: Time taken to attend to a disruptive student.	17	2%

Note: Percentages are rounded to the nearest whole percent. Activities can occur concurrently, percentages will not sum to 100 percent.

Horn to other students (Item 31). Students were split regarding the ease of their classes (Item 3, 47% "Yes", 41% "No") but most reported <u>not</u> learning from their classes. Sixty-five percent of the students felt they did <u>not</u> learn a lot about science (Item 8), writing (Item 10, 57%) or social studies (Item 11, 58%). Only 30% of the students reported learning a lot about math (Item 5) or liking their math class (Item 6, 37%). However, fifty-one percent of the students

Table 4

Classroom Observation
Theme Evidence (N= 41)
Van Horn Engineering & Technology Magnet High School
1990 - 1991

Type of Theme Evidence	Evident	N	%
1. Community Involvement.	Yes	0	0%
	No	41	100%
2. Banners.	Yes	1	2%
	No	40	98%
3. Posters.	Yes	19	46%
	No	22	54%
4. Art and Pictures.	Yes	1	2%
	No	40	98%
5. Books.	Yes	28	68%
	No	13	32%
6. Student Products.	Yes	18	44%
	No	23	56%

Note. Percentages are rounded to the nearest whole percent.

reported that their math class helped them to solve problems they have outside school (Item 7).

Not many students reported liking their engineering, CADD and robotics classes (Item 14, 25%); or learning a lot about engineering, robots and computers (Item 12, 24%), or how technology contributes to society (Item 15, 21%). Also, students did not feel that completing the projects helped them feel good about themselves (Item 21, 77%).

Although students reported themselves as being well-behaved in the hallways (Item 26, 66%) and in class (Item 25, 61%), only 36% of the students felt Van Horn was a safe place to be. Alternately, they did feel there was good communication between students and the principal (Item 28, 62%).

Teacher. Teacher surveys were administered at Van Horn by evaluation personnel. Teachers (N= 50) were asked to provide their perceptions of program functioning by assigning a level of agreement ranging from "Agree Completely" to "Disagree Completely" to statements concerning the functioning of the magnet program. A day was set where teachers were directed to come in private or in groups to complete the questionnaire at any time during the day.

Table 5

Student Perceptions (N= 145)
Van Horn Engineering & Technology Magnet High School
1990 - 1991

Item	Response		
	Yes	No	Neutral
1. I am glad to go to the Van Horn engineering and technology school.	29%	62%	9%
2. Overall, I like my classes.	27%	60%	13%
3. I think my classes are too easy.	47%	41%	12%
4. I enjoy doing the projects for my classes.	17%	62%	21%
5. I am learning a lot about math this year.	30%	59%	11%
6. I like my math class.	37%	48%	15%
7. My math class helps me to solve problems I have outside school.	51%	31%	18%
8. I am learning a lot about science this year.	21%	65%	14%
9. I like my science class.	24%	59%	17%
10. I am learning a lot about writing this year.	28%	57%	15%
11. I am learning a lot about social studies this year.	22%	58%	20%
12. I am learning a lot about engineering, robots and computers.	24%	64%	12%
13. I learned a lot in the lab classes this year.	24%	44%	32%
14. I like going to my engineering, CADD and robotics classes.	25%	46%	29%
15. I am learning how technology contributes to society.	21%	58%	21%
16. I am learning good study habits here at Van Horn.	37%	41%	22%
17. Working on the computers helps me with all of my subjects.	24%	62%	14%
18. I enjoy learning and finding out about new things.	9%	85%	6%
19. I learned a lot from the field trips this year.	32%	34%	34%
20. The projects I do help me learn more about each of my subjects.	26%	51%	23%
21. Completing the projects helps me to feel good about myself.	10%	77%	13%
22. My teachers helped me relate my subjects to each other this year.	30%	48%	22%

Table 5 (continued)

Student Perceptions (N= 145)
Van Horn Engineering & Technology Magnet High School
1990 - 1991

Item	Response		
	Yes	No	Neutral
23. My teachers challenge me to work hard.	25%	56%	19%
24. Van Horn is a safe place to go to school.	36%	51%	13%
25. Students at Van Horn are well behaved in class.	61%	24%	15%
26. Students at Van Horn are well behaved in the hallways.	66%	20%	14%
27. At Van Horn, there is good communication between students and the teachers.	40%	45%	25%
28. At Van Horn, there is good communication between students and the principal.	62%	20%	18%
29. At Van Horn, there is good communiction between the students and the counselors.	31%	49%	20%
30. At Van Horn, there is good communication between students and the assistant principal.	37%	44%	19%
31. I feel good about this school.	32%	52%	16%
32. I would recommend Van Horn to other kids.	38%	45%	17%
33. My teachers help me to consider different possibilities before I make a decision.	21%	57%	22%

Note: Percentages are rounded to the nearest whole percent.

Table 6 details teacher's responses. Teachers disagreed with 22 of the 32 statements. For the purpose of this report, disagreed is defined as 50% or more teachers responding "Disagree Somewhat" or "Disagree Completely".

Teachers felt there was <u>not</u> good communication between teachers and the administration (Item 30, 58%) <u>uninformed</u> about the magnet plan for this year (Item 1, 90%), and <u>unaware</u> of established expectations for student academic performance (Item 9, 84%). Teachers felt the school was <u>not</u> implementing the theme according to the site plan (Item 2, 88%). The school administration was reported to <u>not</u> provide <u>quality</u> instructional support needed to implement the theme (Item 7, 70%), and to be <u>unavailable</u> to help teachers implement the

Table 6

Teacher Perceptions (N= 50)
Van Horn Engineering & Technology Magnet High School
1990 - 1991

Item		N	%
1. I am informed about the magnet school plan for this year.	Agree Completely	2	4%
	Agree Somewhat	2	4%
	Neutral/No Opinion	1	2%
	Disagree Somewhat	26	52%
	Disagree Completely	19	38%
2. Our school is implementing the magnet theme according to the site plan goals and objectives.	Agree Completely	--	--
	Agree Somewhat	2	4%
	Neutral/No Opinion	4	8%
	Disagree Somewhat	22	44%
	Disagree Completely	22	44%
3. I am aware of all resources available to help me implement this theme.	Agree Completely	4	8%
	Agree Somewhat	8	16%
	Neutral/No Opinion	8	16%
	Disagree Somewhat	20	40%
	Disagree Completely	10	20%
4. The resources available to help me implement the theme are helpful to me.	Agree Completely	3	6%
	Agree Somewhat	8	16%
	Neutral/No Opinion	8	16%
	Disagree Somewhat	20	40%
	Disagree Completely	11	22%
5. Teaching within this theme challenges me professionally.	Agree Completely	1	2%
	Agree Somewhat	4	8%
	Neutral/No Opinion	7	14%
	Disagree Somewhat	15	31%
	Disagree Completely	22	45%
6. My students' academic ability is improving as a result of the Engineering and Technology Theme.	Agree Completely	1	2%
	Agree Somewhat	9	18%
	Neutral/No Opinion	21	43%
	Disagree Somewhat	15	31%
	Disagree Completely	3	6%
7. The administration at this school provides the quality of instructional support I need to implement the magnet theme.	Agree Completely	2	4%
	Agree Somewhat	2	4%
	Neutral/No Opinion	11	22%
	Disagree Somewhat	26	52%
	Disagree Completely	9	18%
8. I am aware of established expectations for student conduct and behavior in school.	Agree Completely	--	--
	Agree Somewhat	3	6%
	Neutral/No Opinion	3	6%
	Disagree Somewhat	19	38%
	Disagree Completely	25	50%
9. I am aware of established expectations for student learning and academic performance.	Agree Completely	--	--
	Agree Somewhat	3	6%
	Neutral/No Opinion	5	10%
	Disagree Somewhat	17	34%
	Disagree Completely	25	50%

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Table 6 (continued)

Teacher Perceptions (N= 50)

Van Horn Engineering & Technology Magnet High School

1990 - 1991

Item		N	%
10. The administration at this school is available to help me successfully implement the magnet theme here.	Agree Completely	1	2%
	Agree Somewhat	5	10%
	Neutral/No Opinion	10	20%
	Disagree Somewhat	18	36%
	Disagree Completely	16	32%
11. Teaching within this theme challenges me personally.	Agree Completely	--	--
	Agree Somewhat	1	2%
	Neutral/No Opinion	7	14%
	Disagree Somewhat	21	44%
	Disagree Completely	19	40%
12. I make a daily effort to infuse the Engineering and Technology theme into each course I teach.	Agree Completely	3	6%
	Agree Somewhat	5	11%
	Neutral/No Opinion	4	9%
	Disagree Somewhat	19	41%
	Disagree Completely	15	33%
13. I have been able to infuse the Engineering and Technology theme into the basic curricula of the district.	Agree Completely	1	2%
	Agree Somewhat	1	2%
	Neutral/No Opinion	7	15%
	Disagree Somewhat	25	52%
	Disagree Completely	14	29%
14. I received training or information needed to operate the computer(s) in my classroom. (LEAVE BLANK if you do not have a computer in your classroom).	Agree Completely	1	2%
	Agree Somewhat	2	4%
	Neutral/No Opinion	1	2%
	Disagree Somewhat	8	16%
	Disagree Completely	10	20%
	No Classroom Computer	28	56%
15. I am satisfied with the quantity of theme related technological (equipment, books, journals, etc.) support here.	Agree Completely	5	10%
	Agree Somewhat	14	28%
	Neutral/No Opinion	10	20%
	Disagree Somewhat	16	32%
	Disagree Completely	5	10%
16. I am satisfied with the quality of theme related technological (equipment, books, journals, etc.) support here.	Agree Completely	6	12%
	Agree Somewhat	10	20%
	Neutral/No Opinion	10	20%
	Disagree Somewhat	17	34%
	Disagree Completely	7	14%
17. I have been able to get the materials I need to implement the Engineering and Technology theme.	Agree Completely	3	6%
	Agree Somewhat	10	20%
	Neutral/No Opinion	11	23%
	Disagree Somewhat	19	39%
	Disagree Completely	6	12%

Table 6 (continued)

Teacher Perceptions (N= 50)

Van Horn Engineering & Technology Magnet High School

1990 - 1991

Item		N	%
18. The field trips and outside expert presentations to my students have enhanced learning within this theme.	Agree Completely	1	2%
	Agree Somewhat	2	4%
	Neutral/No Opinion	16	35%
	Disagree Somewhat	18	39%
	Disagree Completely	9	20%
19. I have been able to apply information I learned during staff development/inservice offered at scheduled sessions.	Agree Completely	3	6%
	Agree Somewhat	4	8%
	Neutral/No Opinion	5	10%
	Disagree Somewhat	29	58%
	Disagree Completely	9	18%
20. I can participate in the implementation of this theme beyond my classroom if I choose.	Agree Completely	--	--
	Agree Somewhat	1	2%
	Neutral/No Opinion	9	18%
	Disagree Somewhat	23	47%
	Disagree Completely	16	33%
21. I am satisfied with the staff development/Inservice sessions regarding the magnet school plan.	Agree Completely	3	6%
	Agree Somewhat	11	22%
	Neutral/No Opinion	8	16%
	Disagree Somewhat	21	42%
	Disagree Completely	7	14%
22. The students in my class are academically ready.	Agree Completely	10	21%
	Agree Somewhat	21	44%
	Neutral/No Opinion	4	8%
	Disagree Somewhat	13	27%
	Disagree Completely	--	--
23. I am comfortable with the role evaluation has in program implementation.	Agree Completely	3	6%
	Agree Somewhat	18	36%
	Neutral/No Opinion	16	32%
	Disagree Somewhat	12	24%
	Disagree Completely	1	2%
24. Students are aware of the expectations for their conduct and behavior here.	Agree Completely	2	4%
	Agree Somewhat	9	18%
	Neutral/No Opinion	3	6%
	Disagree Somewhat	23	46%
	Disagree Completely	13	26%
25. The school is a safe place for students and teachers to be.	Agree Completely	2	4%
	Agree Somewhat	10	20%
	Neutral/No Opinion	6	12%
	Disagree Somewhat	27	54%
	Disagree Completely	5	10%
26. I can stay and teach at this school as long as I want to.	Agree Completely	4	8%
	Agree Somewhat	3	6%
	Neutral/No Opinion	17	36%
	Disagree Somewhat	16	33%
	Disagree Completely	8	17%

Table 6 (continued)

Teacher Perceptions (N= 50)
Van Horn Engineering & Technology Magnet High School
1990 - 1991

Item		N	%
27. I am satisfied with staff development/inservice sessions regarding the process of infusing the theme.	Agree completely	3	6%
	Agree Somewhat	13	26%
	Neutral/No Opinion	5	10%
	Disagree Somewhat	22	44%
	Disagree Completely	7	14%
28. I am committed to this magnet theme.	Agree Completely	3	6%
	Agree Somewhat	--	--
	Neutral/No Opinion	6	12%
	Disagree Somewhat	18	36%
	Disagree Completely	23	46%
29. There is good communication at this school between faculty members.	Agree Completely	2	4%
	Agree Somewhat	10	20%
	Neutral/No Opinion	7	14%
	Disagree Somewhat	25	50%
	Disagree Completely	6	12%
30. There is good communication at this school between faculty members and the administration.	Agree Completely	1	2%
	Agree Somewhat	13	26%
	Neutral/No Opinion	7	14%
	Disagree Somewhat	25	50%
	Disagree Completely	4	8%
31. There is good communication at this school between faculty members and parents.	Agree Completely	2	4%
	Agree Somewhat	15	31%
	Neutral/No Opinion	13	26%
	Disagree Somewhat	16	33%
	Disagree Completely	3	6%
32. There is good communication at this school between faculty members and students.	Agree Completely	--	--
	Agree Somewhat	9	19%
	Neutral/No Opinion	3	6%
	Disagree Somewhat	32	65%
	Disagree Completely	5	10%

Note: All percentages are rounded to the nearest whole percent.

theme (Item 10, 68%). Just over half of the teachers (51%) reported being unable to get the materials needed to implement the theme (Item 17).

Most teachers thought students in their classes were academically ready (Item 22, 65%), but only 20% thought students' academic ability was improving as a result of the engineering and technology theme (Item 6). Yet the teachers did not feel challenged professionally (Item 5, 76%) nor personally (Item 11, 84%). Teachers also reported not being committed to the

magnet theme (Item 28, 88%) nor making a daily effort to infuse the theme into each course (Item 12, 74%).

Achievement.

Student achievement based on the Tests of Achievement and Proficiency (TAP) is reported. The Missouri Mastery and Achievement Test (MMAT) average scale scores for tenth grade students and Degrees of Reading Power (DRP) scores for ninth grade students are also presented.

TAP. Student achievement, based on the Tests of Achievement and Proficiency, is reported for 1991 science, math, reading and writing content areas by grade level and ethnic group (see Table 7 and Figures 1-A and 1-B). In addition, district and national norms are

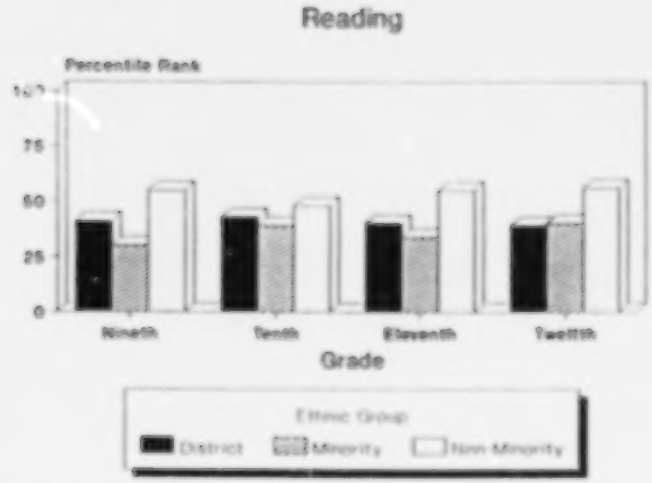
Table 7

Tests of Achievement and Proficiency
Percentile Ranks
Van Horn Engineering & Technology Magnet High School
1990 - 1991

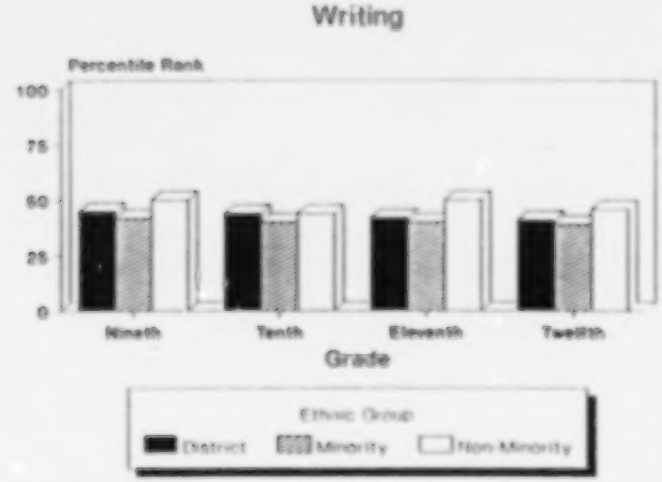
Grade	Content Area			
Ethnic Group	Science	Math	Reading	Language
Ninth				
Non-Minority	51	43	55	50
Minority	29	26	30	42
Dist Norm	40	37	41	45
Tenth				
Non-Minority	48	41	48	44
Minority	36	33	39	40
Dist Norm	46	40	43	44
Eleventh				
Non-Minority	67	55	55	50
Minority	35	35	34	40
Dist Norm	43	40	40	42
Twelfth				
Non-Minority	53	43	56	46
Minority	37	36	40	39
Dist Norm	41	39	39	41

Note: National norm rank is 50 for all grades and content areas.

Figure 1-B
Tests of Achievement and Proficiency
Van Horn Engineering & Technology Magnet High School
1990 - 1991

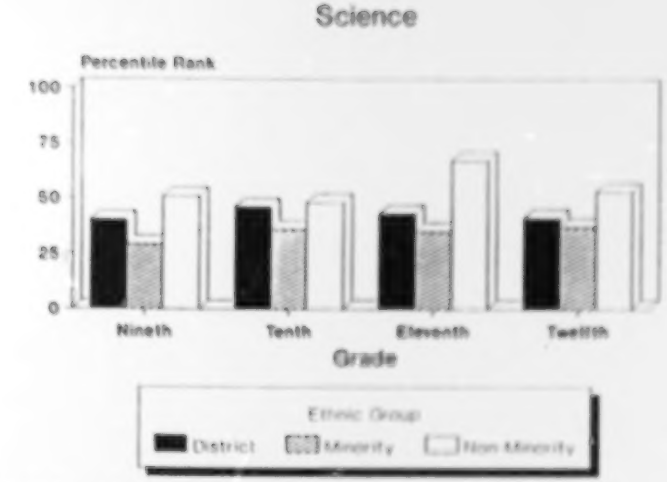


Note: Percentile Ranks represent average grade equivalent Scores.

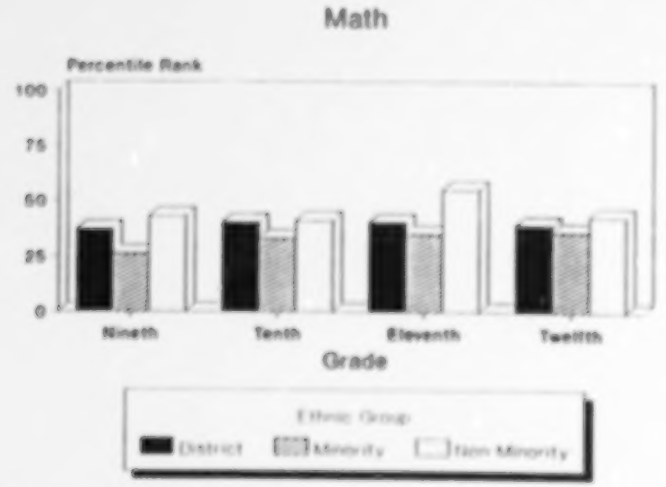


Note: Percentile Ranks represent average grade equivalent Scores.

Figure 1-A
Tests of Achievement and Proficiency
Van Horn Engineering & Technology Magnet High School
1990 - 1991



Note: Percentile Ranks represent average grade equivalent Scores.



Note: Percentile Ranks represent average grade equivalent Scores.

presented for reference. The data presented are percentile ranks converted from mean grade equivalent scores.

Science. Briefly, it can be seen from Table 7 and Figure 1-A that, in all grades, minority students obtained lower percentile ranks for the science subtest than non-minority students. Non-minority students had percentile ranks higher than the district norm in all grades. Minority students ranked below the district norm in all grades with twelfth grade's percentile rank of 37 coming closest to their grade's district norm, which for twelfth grade was 41.

Math. Student rankings on the math subtest were similar to the science subtest. Minority students obtained lower percentile ranks than non-minority students in all grades. Non-minority students had percentile ranks higher than the district norm in all grades. Minority students ranked below the district norm in all grades on the math subtest. As on the science subtest, twelfth grade minority students' percentile rank of 36 was closest to their grades' district norm (39).

Reading. As with the science and math content areas, reading percentile ranks for minority students were lower than non-minority students in all grades. Non-minority students had reading percentile ranks higher than the district norm in all grades. Ninth, tenth and eleventh grade minority students obtained percentile ranks below the district norm. However, twelfth grade minority students, with a percentile rank of 40 on the reading subtest, was one percentile point above the twelfth grade district norm of 39.

Writing. Non-minority students' writing percentiles are also higher than minority students and the district norm in all grades. Compared to the district norms, minority students obtained their best scores on the writing subtest. Eleventh and twelfth grade minority students were two percentile ranks below their district norms; ninth grade for the writing subtest three percentile ranks below, and tenth grade students were four percentile points below their district norm.

Missouri Mastery Achievement Test (MMAT). As Table 8 shows, Van Horn students, with a score of 287, scored higher than the district norm of 282 for Science. However, Van Horn students scored below the district norm on Math, Reading/ Language Arts and Social Studies/Civics. However, the score of 266 for Social Studies/Civics was only two scale points below the district score of 268. Van Horn students scored below the state norm in all content areas.

Table 8

Missouri Mastery Achievement Test Scores: Grade 10
School, District and State Scores
Van Horn Engineering & Technology Magnet High School
Spring 1991

School	Science	Math	Reading/ Language Arts	Social Studies/ Civics
Van Horn	287	269	267	266
District	282	278	273	268
State	327	326	313	302

Degrees of Reading Power (DRP). Ninth grade Van Horn students obtained a Degrees of Reading Power mean unit score of 61 which was slightly below the district mean unit score of 63.

Summary and Recommendations

Van Horn has completed the first year of operation as the Engineering & Technology Magnet High School. Implementation is progressing despite having new construction in progress.

As a new school, Van Horn did not quite reach the established goal of 60% minority/40% non-minority. Slight movement away from having 60% minority enrollment occurred for ninth, eleventh and twelfth grade. Tenth grade moved one percentage point toward enrollment goals. Overall, the program was under utilized. Ninth grade was enrolled beyond stated capacity and eleventh and twelfth grade were enrolled to about 85% of capacity. Tenth grade was only filled to 59% capacity.

Teachers were observed engaging students in problem solving, and spending some time on critical thinking activities and trying to determine student level of understanding but not much time on inquiry type activities.

Surveyed students were generally negative about their school experience. Over half of the students reported <u>not</u> learning a lot about their subjects <u>nor</u> being challenged by their teachers to work hard. Yet 65% of the Van Horn teachers surveyed reported the students to be

academically ready. The students reported they were not glad to be going to Van Horn with 38% reporting they would recommend Van Horn to other students.

Teachers did not seem to be satisfied. Teachers reported not being challenged personally or professionally, committed to the theme; able to infuse the theme; or making a daily effort to infuse the theme. The teachers felt uninformed about the theme yet felt the theme implementation was not going according to the site plan.

Based upon the findings discussed above, the following recommendations are presented:

1. Continue to bring the ethnic composition of the Van Horn Engineering & Technology Magnet High School in line with the court-ordered desegregation goals. Although 62% of all Van Horn students were minority, ninth, eleventh, and twelfth grade percent minority participation moved away from court ordered goals.

2. Discover why students rated the program negatively. If the program is to succeed, students have to be satisfied with it and feel they learn from the program.

3. Discover how to commit teachers to the theme and challenge them personally and professionally. Only6% of Van Horn teachers reported being committed to the theme. Although 65% of the teachers reported their students were ready, only 10% of the teachers reported being challenged professionally.

4. Strengthen academic lessons. Students reported not learning a lot about their subjects, and not being challenged by their teachers. Also, 47% of the students reported that their classes were too easy. Although some scores are close, not all students have TAP scores at or above the national and district norms.

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